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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/603,097

06/25/2003

Ming Xu

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1937

30743

7590

11/03/2004

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EXAMINER

PATEL, RAJNIKANT B

ART UNIT

PAPER NUMBER

2838

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/603,097

Applicant(s)

XU ET AL.

Examiner

Rajnikant B Patel

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,5-7 and 15,19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over with Chida (U.S. Patent # 5,067,066) in combination with Applicant prior art figure 1 and Vinciarelli et al. (U.S. Patent # 5,663,635).

Chida discloses claimed invention a voltage mode quasi-resonant converter (figure 1,3,5), with boost converter topology and auxiliary switch connected to connection point and to a return potential (figure 1, item S) with resonant capacitor Cr and resonant inductor Lr and quasi-resonant buck converter. However Chida does not disclose the utilization of the technique for a buck converter topology with top switch and bottom switch with auxiliary switch. Applicant's prior art (figure 1) teaches buck converter topology and Vinciarelli et al. teaches buck converter topology with auxiliary switch with zero current switching power supply (figure 7 and column 15, line 40-50 and column 16, line 30-65). It would have been obvious one having an ordinary skill in the art at the time the invention was modify Chida converter by utilizing the technique taught by applicant

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prior art and Vinciarelli et al. for the purpose of increasing the efficiency of the power supply.

In regards to claims 2-4 and 16-18, Chida in combination with Applicant prior art figure 1 and Vinciarelli et al. discloses claimed invention except for utilization of resonant inductor has an inductance value in the range of 1-10000 nH and capacitance value in the range .01-100 uF. It would have been obvious one having an ordinary skill in the art at the time invention was made to utilize certain range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

3. Claims 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over with Chida (U.S. Patent # 5,067,066) in combination with Applicant prior art figure 1 and Vinciarelli et al. (U.S. Patent # 5,663,635) and further in combination with Nakagawa (U.S. Patent # 6,429,628 B2).

Chida in combination with Applicant prior art figure 1 and Vinciarelli et al. disclose the claimed invention as explained in the claims 1 and 15, above, except the utilization of the technique for primary and secondary inductor connected in series with a parallel polarity. Nakagawa teaches the utilization of the similar technique for primary and secondary inductor connected in series with a parallel polarity (figure 2 and column 4, line 55-65). It would have been obvious one having an ordinary skill in the art at the time the invention was modify Chida in combination with Applicant prior art figure 1 and

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Vinciarelli et al's converter by utilizing the technique taught by Nakagawa for the purpose of decreasing the losses of the power supply.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rajnikant B Patel whose telephone number is 571-272-2082. The examiner can normally be reached on 6.30-5.00; m-f.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Rajnikant B Patel
Primary Examiner
Art Unit 2838
